REMARKS

Applicants have amended claims 1, 7, 10, 11, and 13, and cancelled claim 2 without prejudice or disclaimer to address comments made by the Examiner in the pending Office Action. Claims 17-25 have been withdrawn from consideration. Claims 1 and 3-25 are now pending.

In the Office Action, the Examiner has objected to claims 4-6 because of informalities, rejected claims 1-15 under 35 U.S.C. § 103(a) as being unpatentable over Mattson et al. (U.S. Patent No. 6,426,991) and Chappo et al. (U.S. Patent No. 6,510,195) in view of Bauer et al. (U.S. Patent Application Publication No. 2002/0011640), and rejected claim 16 under 35 U.S.C. § 103(a) as being unpatentable over Mattson et al., Chappo et al. and Bauer et al. in further view of Yamanaka et al. (U.S. Patent No. 6,372,558). Applicants respectfully traverse the objection to claims 4-6 and the rejections of claims 1-16, at least for the following reasons.

Concerning the objection to claims 4-6, Applicants submit that the previous amendment which modified claim 4 to include the word "comprises" was for editorial purposes, and claims 4-6 remain fully supported by the specification. Accordingly, the Examiner is requested to withdraw this rejection.

Concerning the art-based rejections, Applicants maintain that Mattson et al., Chappo et al. and Yamanaka et al. fail to teach or suggest the features recited in at least amended independent claim 1 for reasons consistent with those presented in the Remarks of the previous Amendment. Applicants further submit that Chappo et al. does not teach or suggest a "frame part" in Fig. 15 and column 12, lines 27-34 as the Examiner contends on page 6 of the final Office Action.

In addition, Applicants respectfully submit that Bauer was cited in the EPC application no. 03,772,879.7. As shown in the attached Exhibit 1, Bauer discloses a plurality of projections projecting from substrate 3 (see the "Bauer I" figure). When viewed from the perspective shown in the "Bauer II" figure in Exhibit 1, it appears that there is a recess. However, as shown in the 'Bauer I" figure, there is no recess. Rather, Bauer has ring shaped semiconductor regions 5.1 or 5 arranged concentrically. Two neighboring regions 5.1 shown in the cross-section of the "Bauer II" figure are connected.

On the other hand, in the claimed embodiments, one semiconductive type semiconductor region 5 per each recessed portion 4 is present as shown in figure O-I in Exhibit 1. In addition, the claimed embodiment includes a frame portion as shown in figure O-I. Applicants submit that such a frame portion is not taught or suggested by Bauer alone or in combination with the other cited references.

Concerning claim 13 specifically, Applicants submit that the claimed embodiments include separations regions 7 formed at the frame portion as shown in figure O-II of Exhibit 1. Applicants note that this portion is isolated from the electrode pad 13a via the electric insulation layer 10 as shown in figure O-II. As stated on pages 23-24 of the present application: "furthermore, formation of the separation regions 7 on the frame part 6 causes an electric separation among photodiodes made on the individual recessed portions 4, resulting in a decrease in cross talk among the photodiodes. Even an absence of the separation region 7 will provide the back illuminated photodiode array 1 with a practical detection sensitivity." Bauer teaches layer 6 (see the "Bauer I" figure), which presumably the Examiner construes as the separation region. However, this layer 6 in Bauer is electrically connected to page 8.2 in order to detect light as illustrated in the "Bauer II" figure. Also, as stated above, Bauer fails to teach a recess.

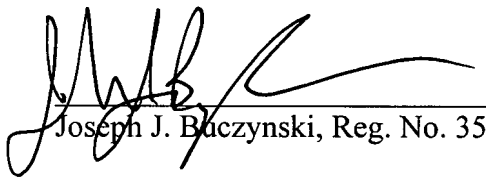
At least for the foregoing reasons, Applicants submit that all of the pending claims patentably distinguish over the applied art of record. Accordingly, reconsideration and withdrawal of the objections and rejections applied to the pending claims are respectfully requested.

CONCLUSION

In view of the foregoing, Applicants submit that the pending claims are in condition for allowance, and respectfully request withdrawal of all outstanding objections and rejections, and request the timely allowance of the pending claims. Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact Applicants' undersigned representative to expedite prosecution. A favorable action is awaited.

EXCEPT for issue fees payable under 37 C.F.R. § 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. § 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account No. 50-0573. This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F.R. § 1.136(a)(3).

Respectfully submitted,



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